

CLAIMS

1. A nanoparticle production method comprising:

a nanoparticle production step of producing nanoparticles by irradiating a laser light irradiation portion of a to-be-treated liquid with a laser light, wherein suspended particles are suspended, to pulverize the suspended particles in the laser light irradiation portion; and

10 wherein the laser light irradiation portion of the to-be-treated liquid is cooled prior to irradiation of the laser light irradiation portion with the laser light.

2. The nanoparticle production method according to Claim 1, further comprising, after the nanoparticle production step, a rapid cooling solidification step of rapidly cooling and solidifying the laser light irradiation portion.

3. The nanoparticle production method according to Claim 2, wherein in the rapid cooling solidification step, the rapid cooling solidification is carried out at a cooling rate with which the rate of progress of solidification of the laser light irradiation portion is higher than the rate of Brownian motion of the nanoparticles.

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4. The nanoparticle production method

according to Claim 1, further comprising:

a cooling solidification step of, prior to the nanoparticle production step, cooling and solidifying the to-be-treated liquid and thereby obtaining a
5 solidified body;

a thawing step of irradiating the laser light irradiation portion of the solidified body with a thawing laser light and thawing the laser light irradiation portion; and

10 an optical trapping step of irradiating the laser light irradiation portion with an optical trapping laser light and gathering the suspended particles to the center of the laser light irradiation portion by the optical trapping action of
15 the optical trapping laser light.

5. The nanoparticle production method according to Claim 4, further comprising, after the nanoparticle production step, a laser irradiation stopping step of stopping the irradiations with the
20 thawing laser light, the optical trapping laser light, and the nanoparticle production laser light.

6. A nanoparticle production device comprising:

a treatment chamber, containing a to-be-treated
25 liquid;

a nanoparticle production laser device,

irradiating a laser light irradiation portion of the to-be-treated liquid with a nanoparticle production laser light; and

5 a temperature adjustment device, enabled to cool the laser light irradiation portion of the to-be-treated liquid; and

10 wherein nanoparticles are produced by irradiating the laser light irradiation portion of the to-be-treated liquid with the nanoparticle production laser light, wherein suspended particles are suspended, to pulverize the suspended particles in the laser light irradiation portion.

7. The nanoparticle production device according to Claim 6, further comprising:

15 a thawing laser device, irradiating the laser light irradiation portion with a thawing laser light when the laser light irradiation portion is made into a solidified body by cooling solidification of the to-be-treated liquid and thereby thawing the laser 20 light irradiation portion; and

25 an optical trapping laser device, irradiating the laser light irradiation portion with an optical trapping laser light and thereby gathering the suspended particles to the center of the laser light irradiation portion.

8. A nanoparticle preservation method,

wherein a to-be-treated liquid, in which nanoparticles are suspended, is preserved in a solid-phase state.